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ABSTRACT

This document reports on the model and method used to design, implement, coordinate, and evaluate a summer camp for young people with eating disorders. The basic approach used at the camp is described as the Sports Institute for Research model, a systems analysis model which focuses on: (1) the ultimate goal or mission; (2) obstacles or problems preventing achievement of this goal; (3) structure in terms of administration and control; (4) significant individuals and groups of both clients and providers in terms of their traits, situations, and behaviors; (5) social stress from outside the sponsoring organizations; and (6) constituent strain from within the specific project, leading to recommended changes, restructuring, and realignment of individuals and groups to establish a trend. The model was applied specifically to the Bulimia Anorexia Nervosa Association-Canadian/American summer camp and change agent research was used in each of the individual camps; quantitative and qualitative data obtained in the research evaluation are presented. Includes charts. (NB)

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CHANGE AGENT RESEARCH ON THE BANA-CAN/AM SUMMER CAMP FOR YOUNG PEOPLE WITH EATING DISORDERS

by

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This workshop reports on the model and method used to design, implement, coordinate and evaluate a summer camp for young people with eating disorders.

The SIR Model attached outlines the basic approach utilized in this endeavour. The SIR (Sports Institute for Research) Model was developed over a number of years for a variety of projects in the sport, athletic and recreation field (Canada Council study on Little League baseball, Ontario Ministry of Education study on the role of interschool sports, Ontario Royal Commission on Violence in the Communications Industry, etc.).

This systems analysis model focuses on 1) the ultimate goal or mission, 2) obstacles or problems preventing achievement of this goal, 3) structure in terms of administration and control, 4) significant individuals and groups of both clients and providers in terms of their traits, situations and behaviours, 5) social stress from outside the sponsoring organizations, 6) constituent strain from within the specific project, all leading to 7) recommended changes, 8) restructuring and 9) realignment of individuals and groups to establish 10) a trend. This model was applied specifically to the BANA-Can/Am summer camp which has been conducted for four years commencing in 1985 to the present. The professional and practical considerations in the sponsorship of such a camp by a university, social service agency or health unit are listed, as well as some pros and cons of this type of treatment as opposed to in-hospital or outpatient treatment.

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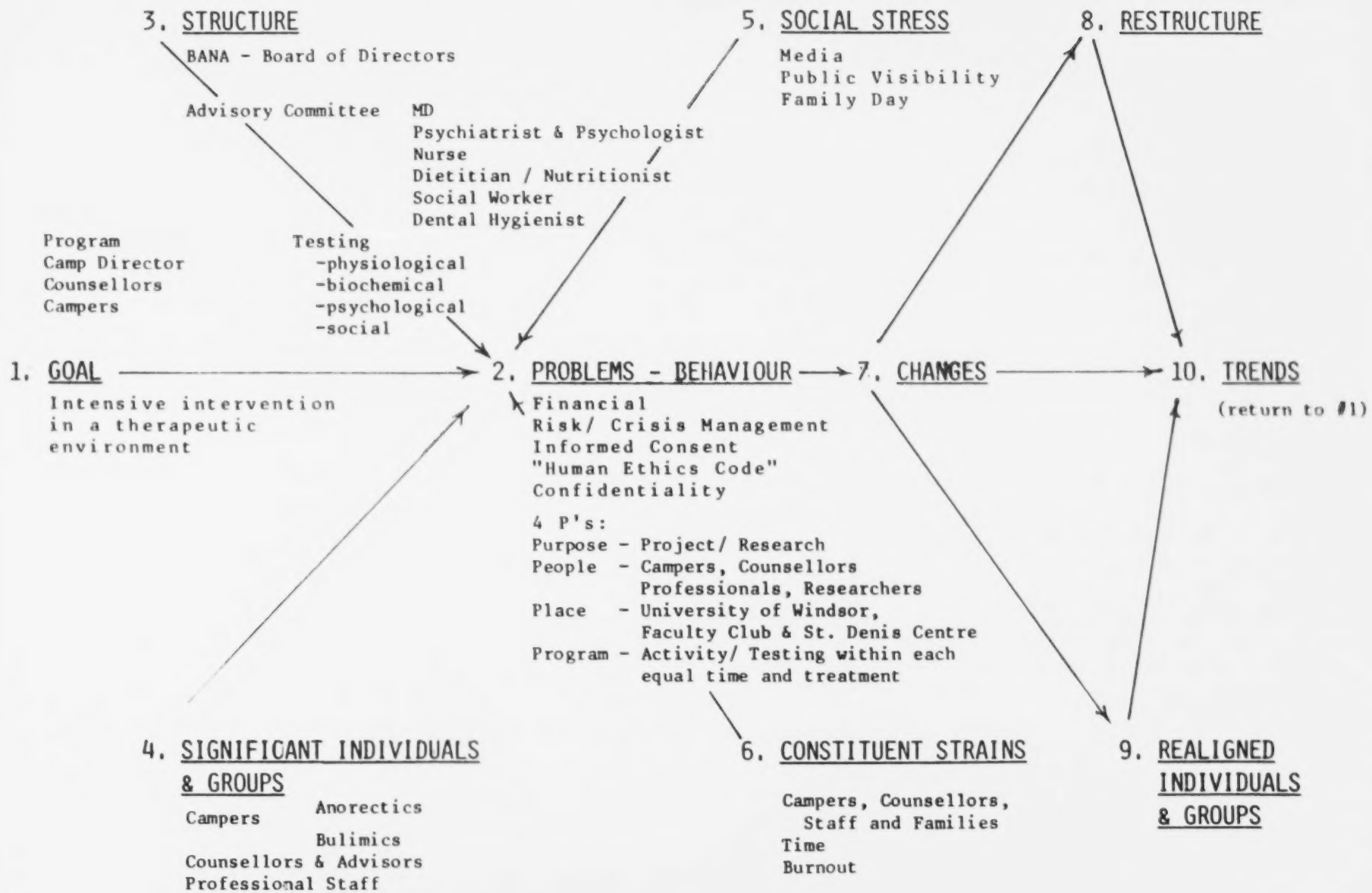
SIR MODEL


3. STRUCTURE
BANA - Board of Directors
Advisory Committee
MD
Psychiatrist & Psychologist
Nurse
Dietitian / Nutritionist
Social Worker
Dental Hygienist
5. SOCIAL STRESS
Media
Public Visibility
Family Day
8. RESTRUCTURE
Program
Camp Director
Counsellors
Campers
Testing
-physiological
-biochemical
-psychological
-social
1. GOAL
Intensive intervention in a therapeutic environment
2. PROBLEMS - BEHAVIOUR
Financial
Risk/ Crisis Management
Informed Consent
"Human Ethics Code"
Confidentiality
4 P's:
Purpose - Project/ Research
People - Campers, Counsellors Professionals, Researchers
Place - University of Windsor, Faculty Club & St. Denis Centre
Program - Activity/ Testing within each equal time and treatment
7. CHANGES
10. TRENDS
(return to #1)
4. SIGNIFICANT INDIVIDUALS & GROUPS
Campers
Anorectics
Bulimics
Counsellors & Advisors
Professional Staff
Volunteer Personnel
6. CONSTITUENT STRAINS
Campers, Counsellors, Staff and Families
Time
Burnout
9. REALIGNED INDIVIDUALS & GROUPS

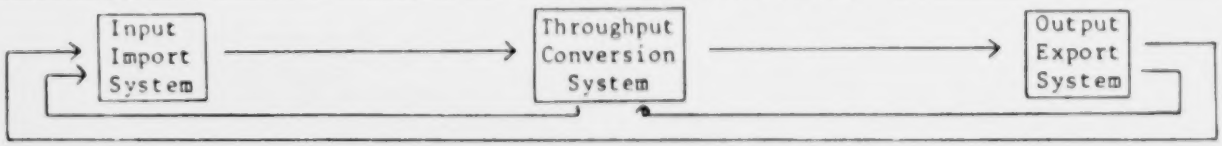
In terms of evaluation and policy research, Change Agent Research (CAR) was utilized in each of the individual camps. This is multidisciplinary research focusing on physiology, psychology and sociology. In addition to quantitative hard data secured through tests or written instruments, qualitative data is also secured through audio interviews and observation of behaviour. This workshop presents the results of pre and post tests of campers (experimental group) and counsellors (control group) who have participated in BANA-Can/Am summer camps in the past. Multi-disciplinary tests administered include: psychology (Eating Disorder Inventory, Minnesota Multiphasic Personality Inventory, Eysenck Personality, Locus of Control, Psychologic Research Form A, Self Appraisal Scale and a full battery of projective tests); nutrition and biochemical tests (MCV, LYMPH, HGB, TIBC, ALB, K^+, NA, CHO and TG); physiology (MVO_2 and percentage body fat); and sociology studies utilizing Semi-Directed Focused Interviews. Audio and visual monitoring and documentation of the campers were also used to monitor behaviour. This is outlined in Phase I - Analysis on the Change Agent Research (CAR) Model attached.

The experimental treatment consisted of an intense five-week exposure in a therapeutic setting to a variety of lifestyle management techniques (dance, cooperative games, health/fitness, art, music/drama, relaxation and stress management). Individual and group psychotherapy was provided by Eating Disorder Clinic Incorporated of Toronto (1985) and Windsor Western Hospital (1986-1987). This is outlined in Phase II of the attached model.

CHANGE AGENT RESEARCH (CAR)

BANA - CAN/AM SUMMER CAMP

ANALYSIS (A)	DEVELOPMENT (D)	RESEARCH (R)
Phase I Organization Audit & Communication Feedback	**Phase II** Activity & Education in Therapeutic Setting on	**Phase III** Organization ReAudit and CAR PAKaging
Monitoring by SEEING -diary -slides -TV -Personal Observation ASKING - Interviews - Interactions - Sociology WRITTEN Psychological * EDI * MMPI * Eysenck * Locus of Control PRF (* = pre-and post-tests) R & D Physiology - mVO_2 - * %Body Fat Biochemical - MCV - LYMPH - HGB - TIBC - ALB - K+ - Na - CHO - TG	-Health/ Fitness -Dance -Cooperative Games -Art -Music/ Drama -Relaxation & Stress Management Techniques -Field Trips -Projective Assessment & debriefing -Bender -Visual-Motor Gestalt -Rorschack Psychodiagnostic -Thematic Apperception -Human Figure Drawings -House-Tree-Person -Kinetic Family Drawings -Free Choice Drawings -Projective Questions -Sentence Completion -Diagnostic Interview Individual & Group Therapy Psychiatrist/ Social Worker PRF Profile & Debriefing Medical/ Physiological Assessment Dietitian/ Nutritionist/ Assessment/ Prescription	Remonitoring by SEEING ASKING WRITTEN TV Production Documentation Audiovisual & Written report for replication in future studies
$Observation_1$	Experimentation and Treatment	$Observation_2$



Input - Throughput - Output Conversion System

Summary of Psychometric Test Data on Nine Campers from the 1985-87 BANA Summer Treatment Camps

Procedures

The Eating Disorder Inventory (EDI), Minnesota Multiphasic Personality Inventory (MMPI), Eysenck Personality Inventory (EPI), and Reid-Ware Multidimensional I-E Scale (LOC) were administered in group format to the campers at the beginning and end of the BANA Summer Camps for Eating Disorders in 1985, 1986 and 1987. Data from both pre- and post-treatment testing is available on nine campers.

Results

Profile validity was assessed by the L scale of the EPI and by the L, F and K scales of the MMPI. All EPI and MMPI profiles were judged valid according to standard interpretation of these indicators. Treatment effects were assessed by a series of repeated measures t-tests comparing the pre- and post-treatment scores for each of the nine subjects on each of the 27 scales employed. The use of 27 scales with only nine subjects prevented the employment of multivariate methods. Table 1 presents a summary of the results of the pre-and post-treatment assessments and of the statistical analyses. The results indicate significant change ($p \leq .05$) on 16 of the 27 scales overall; seven of the eight EDI scales; both of the EPI scales; two of the four I-E scales; and four of the 13 MMPI scales.

Table 1. Evaluation of Treatment Effects

Scale	Pre-Treatment Mean (SD)	Post-Treatment Mean (SD)	t-Value
EDI[1] Scales:			
Drive for Thinness	14.67 (3.16)	8.00 (7.00)	2.64*
Bulimia	12.11 (5.88)	4.45 (7.18)	3.55**
Body Distortion	15.67 (6.84)	12.00 (9.27)	2.37*
Ineffectiveness	10.87 (7.10)	3.11 (2.20)	3.78**
Perfectionism	9.45 (2.74)	5.56 (4.16)	2.74*
Interpersonal Distress	5.78 (5.65)	3.22 (3.83)	1.28
Interoceptive Awareness	15.56 (5.17)	4.44 (4.80)	4.96**
Maturity Fears	6.22 (6.06)	1.56 (2.30)	2.40*
EPI[2] Scales:			
Extraversion	12.00 (4.30)	14.00 (3.55)	2.50*
Neuroticism	16.22 (3.07)	11.00 (5.87)	2.63*
I-E[3] Scales:			
Total Score	16.56 (5.36)	12.67 (5.32)	2.82*
Self Control	6.44 (1.81)	4.44 (2.30)	3.10*
Fatalism	3.89 (2.62)	3.22 (2.44)	0.89
Social System Control	6.22 (2.44)	5.00 (2.06)	1.91
MMPI Scales:			
L	46.78 (5.97)	48.78 (8.32)	1.11
F	63.56 (6.44)	57.00 (5.32)	2.63*
K	51.44 (7.92)	55.78 (9.85)	1.72
Hs	67.22 (17.41)	58.33 (10.05)	2.12
D	70.33 (14.47)	55.33 (12.78)	5.20***
Hy	68.44 (13.00)	62.33 (6.58)	2.00
Pd	76.56 (6.31)	71.22 (7.73)	3.05*
MF	49.56 (8.17)	48.56 (7.33)	0.39
Pa	64.67 (6.50)	62.33 (7.21)	0.95
Pt	64.44 (13.49)	60.22 (12.37)	1.45
Sc	68.87 (10.17)	61.22 (8.33)	2.60*
Ma	66.33 (10.19)	69.22 (10.26)	1.49
Si	53.99 (10.28)	45.67 (9.77)	2.81*

* $p < .05$ ** $p < .01$ *** $p < .0001$

[1]Eating Disorder Inventory

[2]Eysenck Personality Inventory

[3]Reid-Ware Multidimensional I-E Scale

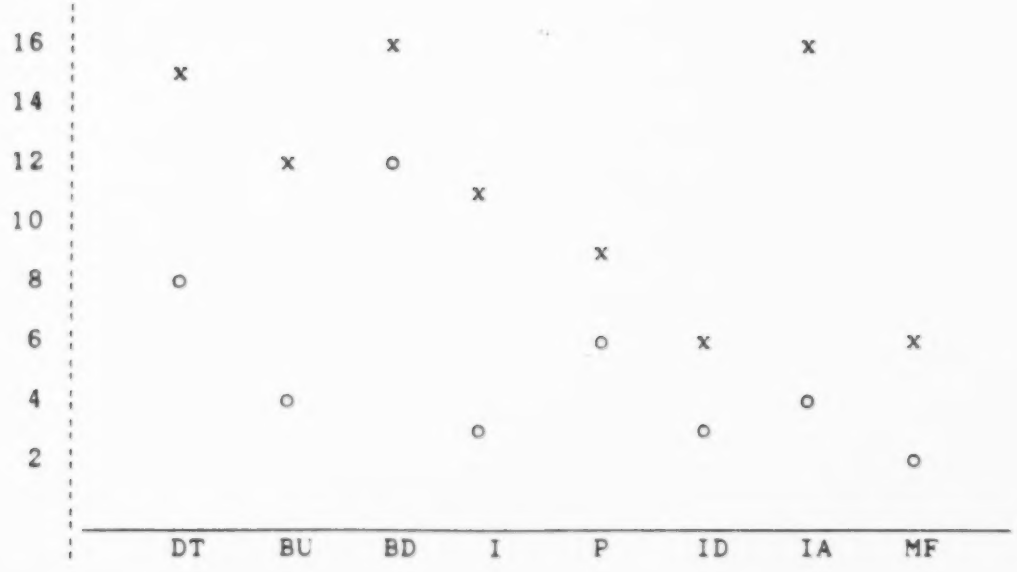
Eating Disorder Inventory

Figure 1 presents the mean pre- and post-treatment profiles for the EDI. A clear and consistent shift towards lower scores (indicating less disturbance) following treatment is evident. The pre-to post-treatment decrease in scores was both sizable and statistically significant on Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interoceptive Awareness and Maturity Fears. The decrease in scores on the Interpersonal Distrust scale did not reach significance. The pre-treatment profile closely resembles Garner & Olmsted's (1984) anorexic profile, whereas the post-treatment profile is well within normal limits. The significant improvement on the Drive for Thinness, Bulimia and Body Dissatisfaction scales indicates that the treatment positively affected the campers' attitudes towards their eating and their bodies. The significant improvement on the Ineffectiveness, Perfectionism, Interoceptive Awareness and Maturity Fears sales indicates that the treatment affected more general underlying psychological patterns as well.

Eysenck Personality Inventory

The mean pre-and post-treatment profiles for the Eysenck Personality Inventory are presented in Figure 2. A significant increase in Extraversion and decrease in Neuroticism is apparent. It is interesting to note that the mean pre-treatment profile resembles a hysteric neurotic profile, whereas the post-treatment profile is quite similar to that for normative American college students.

Eating Disorder Inventory
(N = 9)



Scale	Pre-Treatment Mean (SD)	Post-Treatment Mean (SD)	t-Value
Drive for Thinness	14.67 (3.16)	8.00 (7.00)	2.64*
Bulimia	12.11 (5.88)	4.45 (7.18)	3.55**
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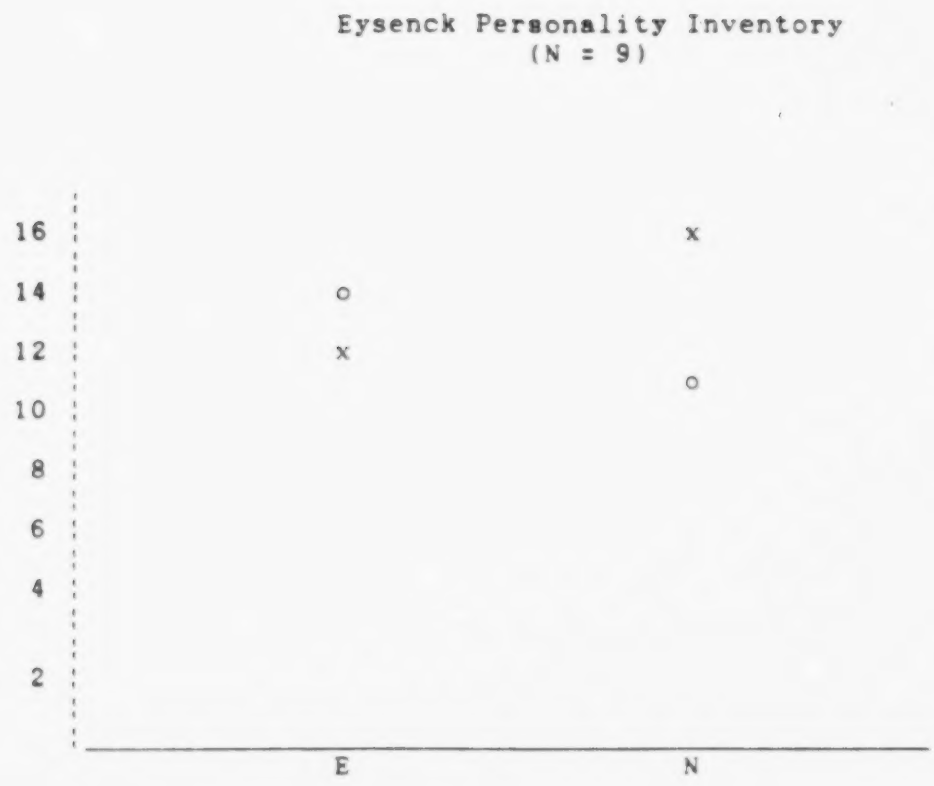
Interoceptive Awareness	15.56 (5.17)	4.44 (4.80)	4.96**
Maturity Fears	6.22 (6.06)	1.56 (2.30)	2.40*

*p<.05 **p<.01

x Pre-Treatment Mean
o Post-Treatment Mean

Figure 1: Eating Disorder Inventory



Scale	Pre-Treatment Mean (SD)	Post-Treatment Mean (SD)	t-Value
Extraversion	12.00 (4.30)	14.00 (3.55)	2.50*
Neuroticism	16.22 (3.07)	11.00 (5.87)	2.63*

*p<.05

x Pre-Treatment Mean
o Post-Treatment Mean

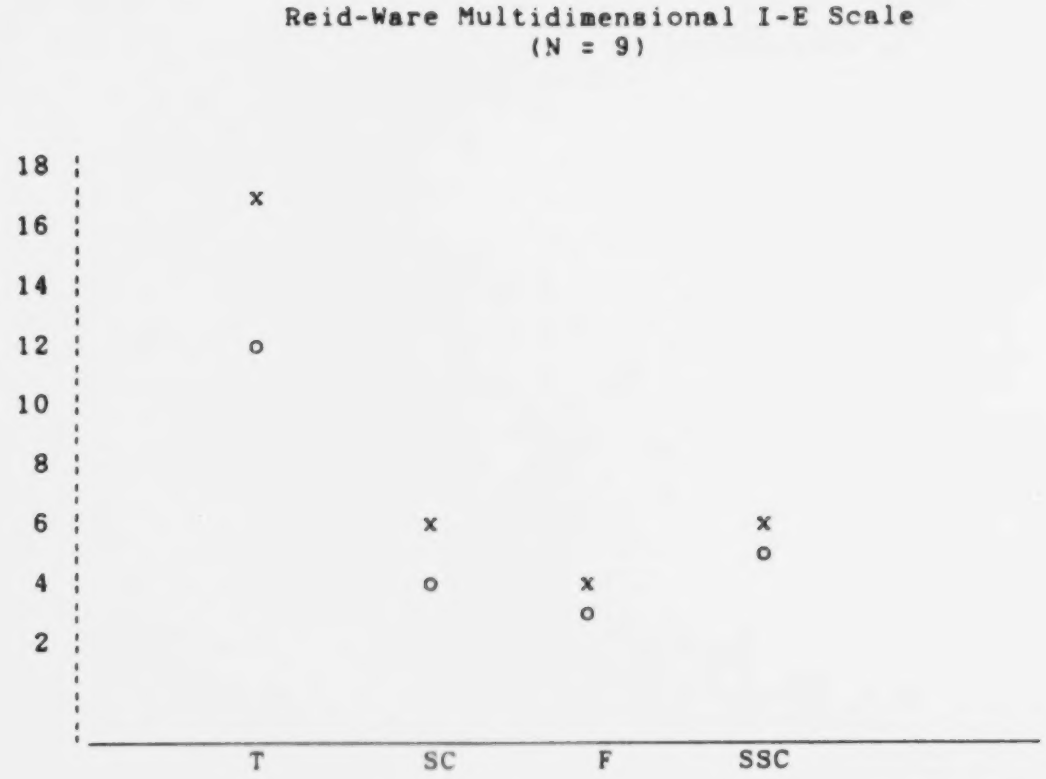
Figure 2: Eysenck Personality Inventory

Reid-Ware Multidimensional I-E Scale

The mean pre- and post-treatment profiles on the Reid-Ware Multidimensional I-E Scale are presented in Figure 3. Because of the manner in which the scale is scored, the significant decrease on the Self-Control Scale indicates a more internal locus on the dimension of self-control. Similarly, the significant decrease in the Total Score indicates a shift to a more internal locus of control overall. Decreases on the Social System Control and Fatalism scales were not significant. Because the development of anorexia nervosa and bulimia seem to depend, at least in part, on the individual's sense of not being in control of her life and not being able to control herself, these changes are most important.

MMPI

Figure 4 presents the pre- and post-treatment mean MMPI profiles. Significant decreases on F, D, Pd, Sc, and Si are apparent. The mean profile changed form a quite elevated one with marked elevations on Pd and D and moderate elevations on Sc, Hy, Hs, Ma and Pa to a comparatively simple profile elevated markedly on Pd and moderately on Ma. The largest and most significant MMPI single scale change was on D which declined a full 15 points from the markedly elevated to the normal range, indicating a dramatic decrease in depression among the campers. The decrease in the scales referred to as the "neurotic triad" (Hy, Hs and D) tends to confirm the decreasing neuroticism found on the Eysenck Personality Inventory. It is interesting to note that the post-treatment profile is similar to that found in

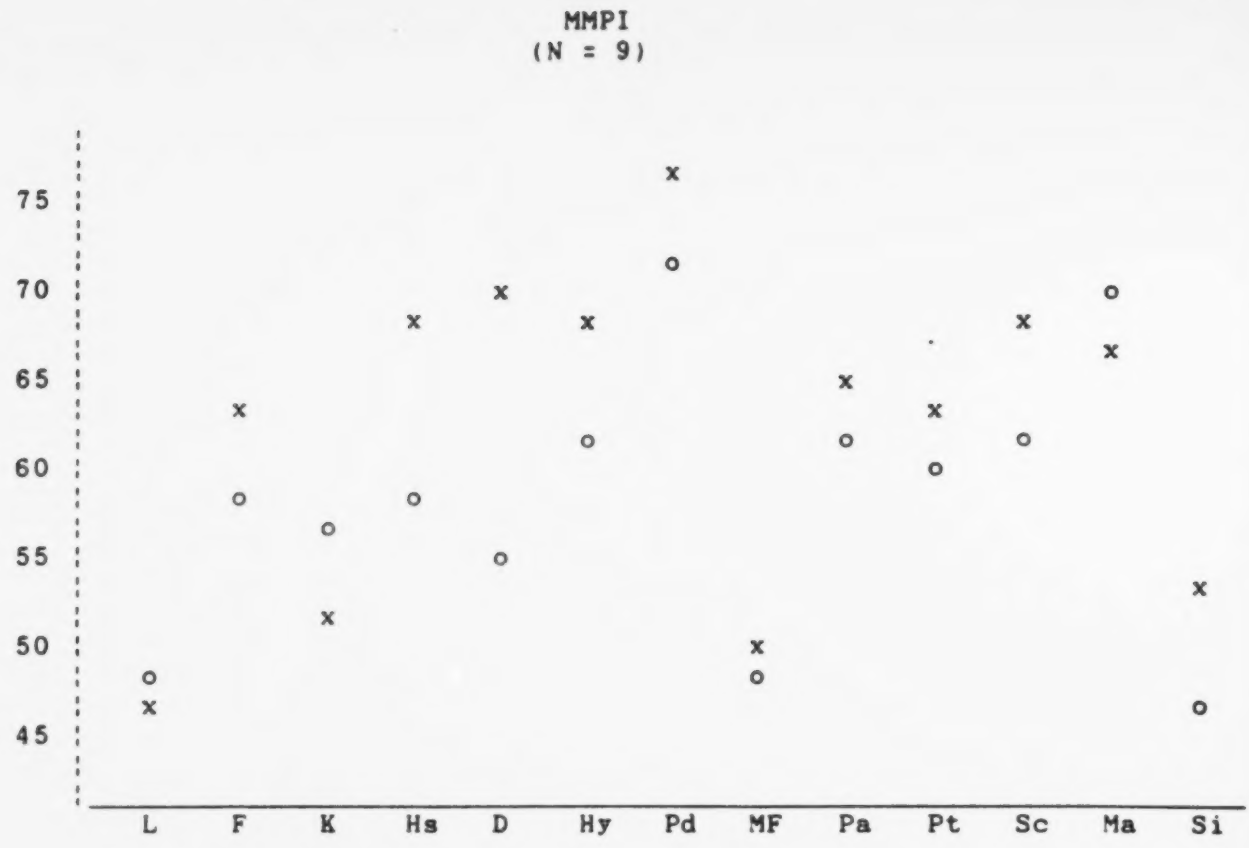


Scale	Pre-Treatment Mean (SD)	Post-Treatment Mean (SD)	t-Value
Total Score	16.56 (5.36)	12.67 (5.32)	2.82*
Self Control	6.44 (1.81)	4.44 (2.30)	3.10*
Fatalism	3.89 (2.62)	3.22 (2.44)	0.89
Social System Control	6.22 (2.44)	5.00 (2.06)	1.91

*p<.05

x Pre-Treatment Mean
o Post-Treatment Mean

Figure 3: Reid-Ware Multidimensional I-E Scale



Scale	Pre-Treatment Mean (SD)	Post-Treatment Mean (SD)	t-Value
L	46.78 (5.97)	48.78 (8.32)	1.11
F	63.56 (6.44)	57.00 (5.32)	2.63*
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Hy	68.44 (13.00)	62.33 (6.58)	2.00
Pd	76.56 (6.31)	71.22 (7.73)	3.05*
MF	49.56 (8.17)	48.56 (7.33)	0.39
Pa	64.67 (6.50)	62.33 (7.21)	0.95
Pt	64.44 (13.49)	60.22 (12.37)	1.45
Sc	68.67 (10.17)	61.22 (8.33)	2.60*
Ma	66.33 (10.19)	69.22 (10.26)	1.49
Si	53.89 (10.28)	45.67 (9.77)	2.81*

*p<.05 ***p<.001

x Pre-Treatment Mean
o Post-Treatment Mean

Figure 4: MMPI

many people with substance abuse problems (alcoholics, drug addicts, etc.), supporting the view of eating disorders as substance abuse or addiction problems. This resemblance serves to emphasize that predisposing personality patterns remain which leave the campers at risk for reestablishing their eating disorders. Intensive, and probably long-term, follow-up treatment would clearly be recommended.

Summary

In summary, significant improvement was found on almost every measure employed. Statistical significance on so many measures despite a sample size of only nine subjects is most remarkable. This research presents compelling evidence that the treatment camp was quite effective in changing psychological or personality patterns underlying the development of eating disorders as well as patterns central to the eating disorder syndrome itself.

Analysis of the data shows significant improvement in campers (experimental group) but no change in counsellors (control group). Campers' Eating Disorder Inventory (EDI) profiles show a shift from that of an eating disordered individual to that of a normal female college student. This improvement was reflected in the other psychological tests analyzed. Similar improvements were shown in physiological and biochemical assessments and sociological outlook. Followup studies have shown that these improvements have been maintained in those instances where campers utilized appropriate ongoing or periodic treatment.

The BANA-Can/Am camp for young people provides a model and method for institutions interested in providing counseling and treatment for eating disordered individuals. The field/laboratory setting which such a camp provides lends itself to task force Change Agent Research involving professionals conducting the camp and researchers who restrict their involvement to pre and post testing and analysis.